

2nd to 19th, Portland and Louisville canal frozen over; 20th, canal open; 22d, navigation resumed to-day. *Alleghany*—Tarentum, Pa., ice broke up; Pittsburgh, 3d, river frozen over; 18th, river open for several miles above city; 19th, ice gorge broke about noon, sinking a number of canal boats and barges; 20th, 21st, 22d, river full of floating ice; 24th, little ice in river; 25th, river clear of ice; 28th, ice running all day; 29th river full of floating ice; 30th, heavy ice moving all day; 31st, ice nearly all out. *Monongahela*—Morgantown, 17th, ice gorged in river, carrying away portion of river gauge, water rose twelve feet in 30 minutes; 21st, heavy ice in river; 22d, river clear of ice; 23d, floating ice in river. Pittsburgh, 3d, river frozen over. *Buffalo Creek*—Wellsburg, West Va., 18th, ice run out, thawing rapidly. *Scioto River*—Columbus, 28th, ice broke up. *Tennessee River*—Chattanooga, 9th, two steamers sunk between Kingston and London by floating ice; 10th, river rising rapidly, gorge giving way above; 13th, river reached danger line; 14th, river rising rapidly and overflowing lower portions of city; 15th, river reached highest point, 38 feet above zero of gauge; 16th, river falling. *Roanoke River*—Weldon, N. C., 3d, 4th, full of floating ice; 5th, frozen over solid, which had not occurred before since 1857; 6th, river seems to have stopped flowing, no water in view, ice seems to be lying on the bed of the river; 7th, one or two small streams commenced to flow on top of the ice; 8th, ice broke up and began moving in immense quantities; 12th, river high and rising, channel clear, ice heaped near the shore; 13th, river overflowing banks and rising all day; 14th, still rising, about three inches during the day and twelve during the night; 15th, rose five inches during day. *Red Is and Creek*—Wytheville, Va., 12th, ice gorged, water overflowed the low ground, carrying away six cattle; in a short time gorge burst and tore out part of mill dam, carried off considerable material and excavated huge rocks, damage estimated at \$500; 11th, ice moved out of Barrett's dam during the night; 12th, water very high. *Rivanna River*—Broad Oak, Va., 22d, river clear of ice. *James River*—Dover Mines, Va., 14th, river clear of ice; 16th, canal open to navigation, having been closed by ice for twenty-one days. *Potomac River*—Ft. Whipple, Va., 1st, ice in river firm; 2d, river still frozen; off Ft. Foote, 3d, ice 12 in. thick. Georgetown, continued frozen during the month. *Patapsco*—Woodstock, Md., 9th, river open. Baltimore, 3d, harbor and basin covered with solid ice, navigation almost entirely suspended; 4th, several tug boats fast in the ice near Annapolis; schooner "Eastern Light" sunk off Hell Point, with 300 bushels of oysters, and schooner "Burning Hall" sunk near Highlands, the crews of both being compelled to make their escape on the floating ice; several oyster schooners fast in the ice and abandoned by the crews; 5th, fourteen tug boats and several oyster schooners ashore down the river. *Susquehanna*—Catawissa, Pa., north branch closed during month. *Hudson*—West Point, N. Y., 3rd, river completely frozen over; New York, 3rd, floating ice in river, causing many interruptions to travel; Sandy Hook, 3rd, bay full of floating ice. *Flushing Bay*—Flushing, N. Y., 31st, navigation still closed. *Narraganset Bay*—Newport, 3rd, ice forming in harbor. *Buzzards Bay*—New Bedford, Mass., 6th, harbor covered with ice; 28th, ice breaking up. *Vineyard Sound*—Wood's Holl, 3rd to 12th, ice in harbor; 13th, 25th, ice gorge in harbor. *Otta Queche River*—Woodstock, Vt., ice on river 19 inches thick. *Lake Superior*—Duluth, 14th, ice forming rapidly on surface of lake; 15th, lake frozen; 26th, ice breaking up, harbor full of floating ice. *Lake Geneva*—Bloomfield, Wis., 6th, ice sixteen inches thick. *Lake Michigan*—Grand Haven, 7th, miles of ice on lake outside of pier; 15th, in many places at the distance of half a mile from shore ice 30 to 35 feet deep, extending to the bottom of the lake; 16th, outlet made for the ice-bound vessels, through the force of the high east winds starting the ice. *Embarrass River*—Embarrass, Wis., 29th, ice on river 24 inches thick. *Grand River*—Grand Haven, 7th, river frozen over to a considerable distance from its mouth, ice extends nearly to the bottom; 15th, workmen trying to cut a channel at the mouth of river to liberate the ice-bound vessels. *Grand Traverse Bay*—Northport, Mich., 31st, no ice in bay. *Lake Erie*—Sandusky, 6th, teams came over ice from North Bass Island, distance twenty-four miles; ice in middle of lake reported 14 inches thick. Cleveland, 3rd, lake covered with ice as far as the eye could reach, 6th, lake still frozen; 7th, ice in lake broken; 21st, heavy ice on lake; 27th, ice solid; 29th, ice breaking up; 30th, ice driven ashore. *Cuyahoga River*—Cleveland, 21st, ice in river, 33 inches thick; 27th, ice breaking up. *Lake Champlain*—West Charlotte, Vt., 30th, lake mostly frozen over; 31st, floating ice in lake. Burlington, 10th, navigation closed; 29th, lake entirely frozen over; the records at this place show that the average date of closing, for the last sixty years, has been on January 29th.

*Low Tides*.—Indianola, Tex., 1st to 21st; Tybee Island, Ga., 12th; Baltimore, 4th and 5th, lowest tide on record.

## TEMPERATURE OF WATER.

The *temperatures of water*, as observed in rivers and harbors, with average depth when observations were taken, are given in table on chart No. II. At Alpena, Buffalo, Cleveland, Escanaba, Grand Haven and Sandusky no observations were made on account of ice. At the following stations observations were only made on the dates named: at Burlington, from the 1st to 12th; Chicago, 24th to 31st; Detroit, 29th to 31st; Duluth, 1st to 14th and 27th to 31st; and at Marquette, 26th to 31st. Punta Rassa, Fla., (too late for table on chart,) max. 70°, min. 54°, average depth, 12 feet.

## ATMOSPHERIC ELECTRICITY.

*Thunder-storms*.—Louisville, Ill., 28th; St. Meinrad, Ind., 28th; Bowling Green, Ky., 28th; Lebanon, Mo., 28th, Tarentum, Pa., 27th; McMinnville, Tenn., 28th; Thomasville, Ga., 12th; Pt. Pleasant, La., 11th, 27th; Okalooska, La., 7th; Franklin, N. C., 28th; Clarkesville, Tex., 27th; San Antonio, Corsicana and Castroville, Tex., 26th; Shreveport, La., 11th; St. Louis, 28th.